Steps in the DPR Water Treatment Process

The citizens of Wichita Falls have been hearing quite a bit about the Direct Potable Reuse Project, also known as the DPR Project, Emergency Reuse Project, Short-Term Reuse Project and Temporary Water Reuse Project. Regardless of the name (City staff uses DPR Project) the process for treating the water is the same and involves seven steps:

1. After being processed through the waste water treatment plant, the treated reuse water is disinfected and pumped from the River Road Treatment Facility to the Cypress Water Treatment Plant

2. Treat the reuse water through the Microfiltration Units
During the treatment process the reuse water will be treated with the latest technology being used to clean water, the Microfiltration Reverse Osmosis Plant (MFRO). The first step is Microfiltration. The reuse water will flow into a clarifier, similar to a conventional plant, where it is subjected to a coagulant. The reuse water will then enter the micro-filtration cell where a pump pulls the water through a fiber filled module. The pores in the fiber are so small that most of the impurities are too large to pass through, removing them before the next step in the purification process.

3. Treat the water through Reverse Osmosis
Following Microfiltration, the reuse water will be treated through Reverse Osmosis. This is the same technology that large ships use to treat sea water for human consumption, that is used on the space station and that is used in the process to manufacture silicon chips. The process forces the water through a 0.0001 micron (One micron is one-thousandth of a millimeter) semi-permeable membrane by way of water pressure but only allows water molecules to pass through the membrane. Salts and other contaminants cannot pass through the membrane and are flushed away.

4. Release the MFRO treated reuse water into a holding lagoon

5. Blend the reuse water with raw lake water on a 50-50 basis

6. Treat the blended water through conventional means
Regular raw water from the City's water source lakes, Lake Arrowhead and Lake Kickapoo, is treated once through an extensive series of steps that produce safe, clean drinking water. This is the third step of treatment for the reuse
water and entails:

A. Treatment with Chlorine Dioxide
B. Pre-disinfection
C. Coagulation
D. Softening
E. Flocculation
F. Sedimentation
G. Re-stabilization
H. Fluoridation

7. Store and pump to distribution

Safety Measures, Testing and Review

The City of Wichita Falls has for over 30 years, received the highest water rating given from the State of Texas. The Texas Commission on Environmental Quality (TCEQ) also consistently gives the City a "Superior Water System" rating, their highest rating. The TCEQ inspects the City's entire public water system each year. These inspections have consistently shown that the City's system is compliant with guidelines set forth by the TCEQ and the US Environmental Protection Agency. Ratings are based on continued compliance with Federal and State regulations governing drinking water and annual sanitary surveys conducted by a TCEQ.

In order to meet and exceed these standards the city utilizes a professional team of highly skilled, certified water operators. These water operators are certified by the State of Texas and work throughout the entire water system. Certification levels include Class A, B, C and D, with A being the highest level. Training includes a significant emphasis on science, math and safety and will continue through an operator's career. Recertification must be completed every three years. The City has a total of five Class A operators, 19 Class B and 11 Class C.

Daniel Nix, the City of Wichita Falls Water Utilities Manager, says that the City has, with the assistance of the TCEQ, developed an extensive testing protocol for the DPR Project to verify that all of the processes are doing what they are intended to do which is produce safe, clean drinking water. The testing period will last a total of 75 days. The data from the testing will result in a 6000 page report submitted to the TCEQ for their review. The water will not be released into the distribution system until approved by the TCEQ.